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LUMINARY Memo #205

To: Distribution
From: D. Densmore
Date: 26 February 1971
Subject: Luminary Revisions 206, 207, 208 and 209

Changes in connection with the following were incorporated into revisions 206-209: PCR 324, PCR 333, PCR 336 rev. 1, PCR 1044, PCN 1059, PCR 1121, PCN 1141, Anomaly L-1D-12, L-1D-21, L-1D-23, and L-1D-25.

1) PCR 324 (PGNCS to AGS downlink RR data transfer).

(a) AGSCODE was reset at the beginning of R21, since R21 zeros data (RANGNB, +1) which R22 may have placed on the downlink for the AGS. (b) The downlink reference list was updated to provide references to erasables AMG, TRKMKCNT, and DNRRDOT for the Lunar Surface Align list.

2) PCR 333 (Change recognition of ROD Inputs).

a) AOTMARK was changed not to increment RODCOUNT in MARKRUPT unless average G is on.

b) FLTTHET, an 11-word interpretive routine, was moved from Bank 7 to Bank 6 to make room for the change described in 2(a) above. A new tag, AOTMARK3, was defined in the TAGS log section in Bank 6 for the new SETLOC for FLTTHET.

3) PCR 336 rev. 1 (Allow extended verbs during P20 maneuvers).

The V06 N18 display was deleted from R60 but some of the restart logic display was left in. That was deleted as well.

4) PCR 1044 (Redesign R53-R57).

   a) The number of iteration steps allowed in the lunar surface alignment star vector computation was increased from 16 to 28 to provide for a misaligned platform.

   b) Obsolete AOTMARK alarm comments were deleted from the assembly and operations alarm list.

   c) A checklist code comment for R53 was added to the assembly and operations checklist code.

   d) Obsolete comments in AOTMARK were deleted.

   e) XDSPFLAG was cleared in AOTMARK so that the N88 display (GOFLASH) can come up.

5) PCR 1059 (Have major mode changes set up a 1/ACCS).

In a software restart all scheduled jobs and tasks are cleared out, making all the core sets look inactive. The 1/ACCSET job was scheduled after this. In the case of no active restart groups the restart branched to GOTOPOOH. GOTOPOOH continued to use core set zero, even though it has been made to look inactive. When 1/ACCSET is started up it is assigned core set zero. A conflict resulted. In this revision the conflict was resolved by calling GOTOPOOH as a NOVAC job so that it will be assigned an official core set.

6) PCR 1121 (Put CH5MASK and CH6MASK on the downlink).

These two erasables were put on Coast and Align sublist #5 as a 1DNADR. In this revision an entry linking them was put into the CHECK= table, and a tag (DL220) to reference CH6MASK was put into the downlink tag list.

7) PCN 1141 (Initialize FLRCS in P12).

P12LM was changed to clear FLRCS because if an E has been made to V99, FLRCS is set. It is tested in ASCENT. If it is found set, ASCENT branches to ENDOFJOB via ASCTERM2 instead of assuming APS guidance (MAINENG) and returning to the preignition routine.

8) L-1D-12 (V41 doesn't work).

The tests of remode or reposition in progress at RRWAIT and REMODCHK formerly checked only if one was not in progress. It should branch out to continue only if neither was in progress. RRWAIT continues to OKTOGO, REMODCHK to NOREMODE.

9) L-1D-21 (P20/P22 loop).

P20/P22 initialization removed RR error counter enable (channel 12 bit 2). A RR antenna reposition initiated by R25 just after starting P20 or P20 could therefore have caused P20/P22 to loop and never get RR lock-on. The fix was to clear only the RADMODES bits in the initialization and leave the channel alone.

10) L-1D-23 (CGCALC bug).

TTF/8CL in LLGE was changed to always pick up WCHPHASE before going to INTPRETX. INTPRETX now does INDEX A instead of INDEX WCHPHASE. LGCALC was changed to pick of WCHPHOLD before calling INTPRETX. CGCALC was indexing improperly because it just called the old INTPRETX which used WCHPHASE, which points to the succeeding phase on the final phasses of P63 and P64.

11) L-1D-25 (Ullage waitlist call may not get killed on a V37).

V37 terminates any ullage in progress immediately but it doesn't clear out waitlist tasks until after AVETOMID integration finishes. Consequently an ullage waitlist task could come up during that time and initiate ullage. The anomaly was fixed by putting a KILLTASK for ULLGTASK in V37 (ISSERVON) before going to ENDOFJOB to wait for SERVICER to finish.

GSOP Impact

The following items should be examined for possible impact on the various GSOP sections:

section 2   items 4e, 7
section 4   items 1, 2, 5, 7, 8, 9, 11
section 5   items 4, 9, 10